INTERNATIONAL SEARCH REPORT

International application No.

PCT//US0/4/40444

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : C12P 19/34; C12Q 1/68; C07H 21/04

US CL : 435/6, 91.1; 536/23. 1

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 435/6, 91. 1; 536/23.1

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Medline, CAPLUS, East, Sciencedirect

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A,E	LUCENTINI. J. Gene Associateion Studies Typically Wrong. 20 December 2004, Vol. 18, No. 24, pages 1-4.	1-2 and 12
A,E	KROESE, M. et al. Genetic Tests and Their Evaluation: can we Answer the key Questions? Genetics in Medicine. November/December 2004, Vol. 6, No. 6, pages 475-481.	1-2 and 12
A,E	VEENSTRA-VANDER WEELE, J. Autism as a Paradigmatic Complex Genetic Disorder. Annu. Rev. Genomics Hu. Genet. 2004, Vol. 5, pages 579-405.	1-2 and 12
A	SAHEKI, T. et al. Mitochondrial aspartate glutamate carrier (citrin) deficiency as the cause of adult-onset type II citrullinemia (CTLN2) and idiopathic neonatal hepatitis (NICCD). J. Hum.Genet. 2002, Vol. 47, pages 333-341.	1-2 and 12
A	SANZ, R. et al. Assignment of the calcium-binding mitochondrial carrier, Aralar 1 gene (SLC25A12) to Human Chromosome Band 2q3 1 by in Situ Hybridization. Cytogenetics and Cell Genetics. 2000, Vol. 89, No. 3/4, pages 143-144.	1-2 and 12
A,E	RAMOZ, N. et al. Linkage and Association of the Mitochondrial Aspartate/Gluatamate Carrier SLC25A12 Gene with Autism. The American Journal of Psychiatry. April 2004, Vol. 161, pages 662-668.	1-2 and 12

D Further documents are listed in the continuation of Box C.

D See patent family annex.

* Special categories of cited documents

"A" document defining the general state of the art winch is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(bj ur which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document refernngto an oral disclosure, use, exhibition or other means

"P" document published prior to the international filmgdatc but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlyingthc invention

"X" document of particular relevance, the claimed invention cannot be considered novel or cannot be considered to involve an mveiitive step when the document is taken alone

"Y" document of particular relevance, the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

13 October 2005 (13.10.2005)

Date ofpwuling of the international search report

13 JAN 2006

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Form PCT/ISA/210 (second sheet) (April 2005)

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Box No. π Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons

1 ☐ Claims Nos
because they relate to subject matter not required to be searched by this Authoπty, namely

2 ☒ Claims Nos 3
because they relate to parts of the international application that do not comply with the prescπbed requirements to such an extent that no meaningful international search can be carried out, specifically
No CRF provided for sequence listing

3 ☐ Claims Nos
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6 4(a)

Box No. Ill Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

Phis International Searching Authority found multiple inventions in this international application, as follows
Please See Continuation Sheet

1 ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims

2 ☐ As all searchable claims could be searched without effort justi tying additional fees, this Authoπty did not invite payment of any additional fees

3 **D** As only some of the required additional search tees were timely paid by the applicant, this international search report covers only those claims tor which fees were paid, specifically claims Nos

4 ☒ No required additional search fees were timely paid by the applicant Consequently, this international search report is restricted to the invention first mentioned in the claims, it is covered by claims Nos 1,2 and 12

Remark on Prυtest

☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest tee

☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation

☐ No protest accompanied the payment of additional search fees

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BOX III OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING
Group 1, claims 1-2 and 12, a method of evaluating an individual tor genetic πsk for autism by genotyping SLC25A12

Group 2, claims, 4-1 1 and 14-21, nucleic acid molecules, eukaryotic cell and non-human animal comprising the nucleic acid

Group 3, claim 13, use of genetic polymorphism for evaluating an individual for risk for autism

Group 4, claim 22, method of evaluating whether a compound affects autism by detecting the expression of SLC25A12

Further species election

For group 1, the first species are considered to be each genotype, rs2056202 and rs2292813 and the second species are the primers, SEQ ID No 5-8

For group 2, the species are considered to be a set ot primer pairs, SEQ ID No 5-6, 7-8,and a nucleic acid sequence SEQ ID No 1-4

The first named invention, which will be searched, is Group I, species rs2056202 and SEQ ID No 5, claims 1-3 and 12

The invention listed as Groups 1-2 do not relate to a single inventive concept under PCT Rule 13 1 because, under PCT Rule 13 2, they lack the same or corresponding special technical features for the tollowing reasons The common technical features that joins all the inventions is the gene SLC25A12

SAHEKl, et al (Metab Brain Dis December 2002 17(4), pp 335-346 teach detection of a mutation in SLC25A12 gene which causes neonatal intrahepatic cholestasis and citπn deficiency (see abstract) Thus, the technical feature linking the recited groups 1-4 does not constitute a special technical feature as defined by PCT Rule 13 2, as it does not define a contribution over the prior art Thus, there is no special technical feature that joins the methods

The species listed above do not relate to a single general inventive concept under PCT Rule 13 1 because, under PCT Rule 13 2, the species lack the same or corresponding special technical features lor the following reasons The species do not share a significant structural element and each element does not belong to a recognized class of chemical compounds (see Al Annex B, part 1(f))